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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,991

07/16/2008

Katsuhisa Masumoto

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

ZUCKER, PAUL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

03/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,991	MASUMOTO ET AL.	
	Examiner	Art Unit	
	Paul A. Zucker	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/29/06, 3/11/08</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Chakraborti et al (Tetrahedron, 2003, 59, pages 7661-7668). Chakraborti discloses (Page 7644, column 2, Table 6, entry 12) the synthesis of 3-methyl-2-butenyl acetate (prenyl acetate) via reaction of 3-methyl-2-butene-1-ol and acetic anhydride in the presence of 0.1 mol% of the salt $\text{Mg}(\text{ClO}_4)_2$ as catalyst. Chakraborti therefore anticipates claims 1 and 4.
2. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Wood et al (US 3,959,278 05-1976). Wood discloses (Column 6, line 60- column 7, line 7) a process for the synthesis of prenyl acetate via reaction of 3-methyl-2-butene-1-ol and anhydride. Wood discloses washing with aqueous hydroxide base during purification of the product prenyl acetate. Wood therefore anticipates claim 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al (US 3,959,278 05-1976) in view of CSJ (The Chemical Society of Japan, 1992, Dai 4 pan Jikken Kagaku Koza 22, Yuki Gosei IV San • Amino San • Peptide-, Maruzen Co., Ltd., pages 50-51, translation provided by Applicants).

Instantly claimed is a process for the synthesis of 3-methyl-2-butenyl acetate (prenyl acetate) via reaction of 3-methyl-2-butene-1-ol and acetic anhydride in the presence of alkali metal catalyst.

Wood teaches (Column 6, line 60- column 7, line 7) a process for the synthesis of prenyl acetate via reaction of 3-methyl-2-butene-1-ol and anhydride. Wood teaches

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washing with aqueous hydroxide base during purification of the product prenyl acetate. The use of bicarbonate would have been a modification obvious to one of ordinary skill in the art in view of the known lability of esters toward cleavage in the presence of strong bases such as hydroxide. The impurity removed presumably corresponds to acetic acid, a carboxylic acid.

The difference between the process taught by Wood and that instantly claimed is that an alkali metal acetate is instantly employed while Wood does not employ a catalyst.

CSJ, however, teaches (Page 1, lines 5-20) a process for the reaction between acetic anhydride and an alcohol in the presence of sodium acetate to produce the corresponding ester. CSJ suggests that the process can be applied to a tertiary allylic alcohol which would be expected to be even more sensitive to acid-catalyzed side-reactions than the 3-methyl-2-butene-1-ol employed by Wood. The Examiner considers the corresponding lithium and potassium salts obvious over the sodium acetate taught by CSJ in the absence of a showing of unexpected results.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Claim Objections

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4. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

5. Claims 6 and 7 are directed to allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art: Wood et al (US 3,959,278 05-1976) and CSJ (The Chemical Society of Japan, 1992, Dai 4 pan Jikken Kagaku Koza 22, Yuki Gosei IV San • Amino San • Peptide-, Maruzen Co., Ltd., pages 50-51, translation provided by Applicants) either alone or in combination, neither disclose nor fairly suggests the instantly claimed process which employs an aqueous bisulfite wash since the prior art does not recognize the presence of aldehydes as impurities.

Conclusion

6. Claims 1-9 are pending. Claims 1-5, 8 and 9 are rejected. Claims 6 and 7 are objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul A. Zucker/
Primary Examiner, Art Unit 1621